

# COMPACT LOW AMP ELECTRONIC CIRCUIT BREAKER FOR RESIDENTIAL LOAD CENTER

## Abstract of Disclosure

A panelboard configured for distributing electricity from a power source, the panelboard comprising circuitry for distributing the electricity from the power source, the circuitry comprising a plurality of branch circuits for distributing electricity to associated loads; a plurality of branch circuit breakers, each branch circuit breaker intermediate the power source and the plurality of branch circuits; and an electronic control module for controlling the main circuit breaker and the plurality of branch circuit breakers, the electronic control module provides a protection function and a monitoring function of the circuitry, each branch circuit breaker of the plurality of branch circuit breakers includes; a pair of separable contacts, an electromagnetic actuator in electrical communication with the electronic control module for operably controlling the pair of separable contacts, and a current transformer configured to sense current on the circuitry to one of the associated loads. A method is also described for providing overcurrent protection and control to an electric circuit with a single controller, the method comprising: receiving a trip setting value selected for each branch circuit of a plurality of branch circuits; storing the trip setting value in non-volatile memory; receiving a plurality of sensed signals from a current sensing device employed in the each branch circuit indicating a current therethrough; processing the plurality of sensed signals to detect an overcurrent condition in the each branch circuit; and generating a trip signal to an electromagnetic device coupled to separable contacts employed in each circuit breaker of the each branch circuit for interrupting current therein when an overcurrent condition is detected.

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